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POWER OPERATED HOE

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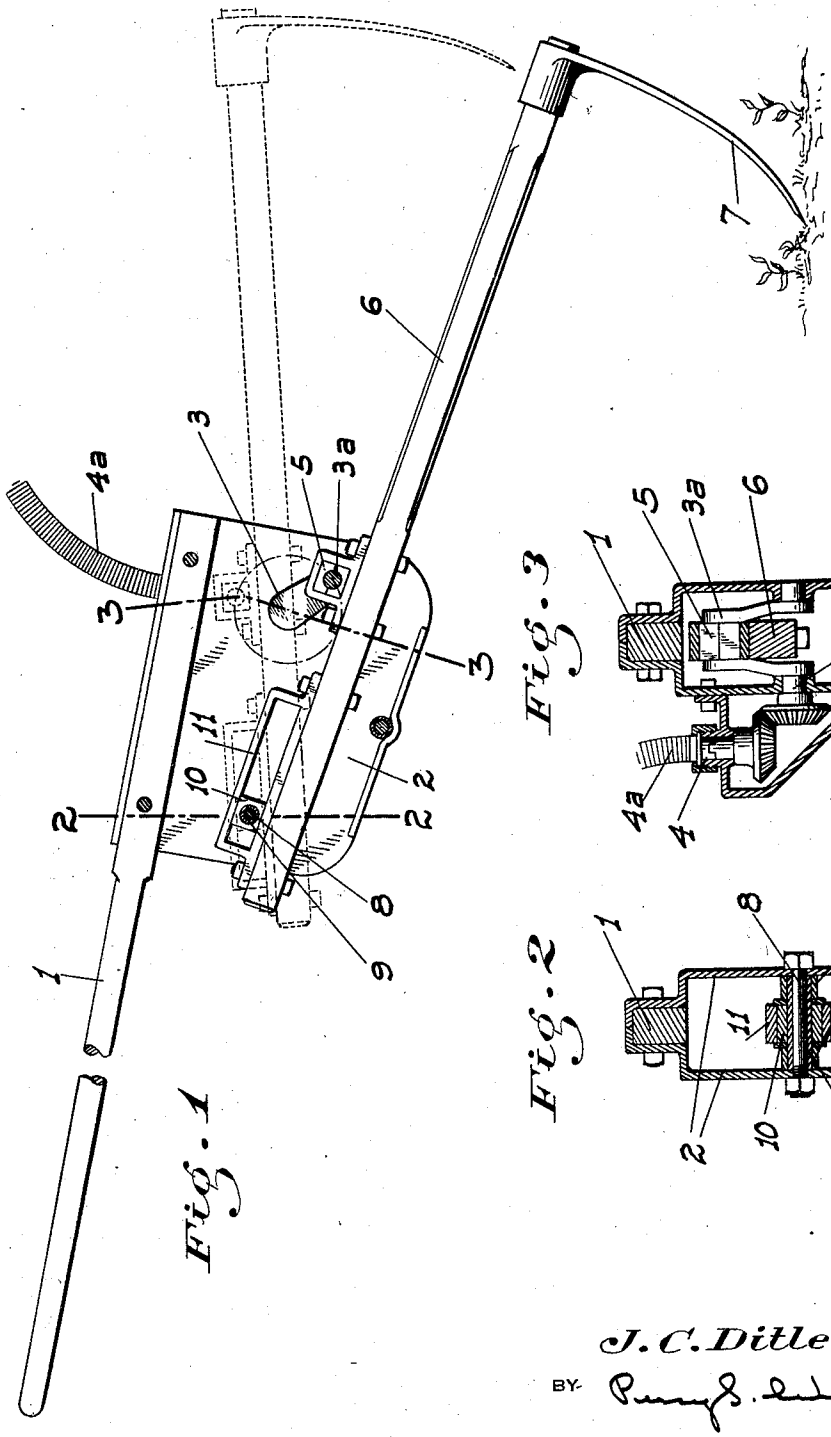


Fig. 1

Fig. 3

Fig. 2

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POWER OPERATED HOE

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This invention relates to hoes, and particularly represents improvements over the power driven hoe shown in my Patent No. 1,743,195, dated January 14, 1930.

The principal object of the present invention is to simplify the construction and improve the efficiency of operation of the hoe by mounting the shank of the same in such a manner that only one driving or operating crank is used, and so that the rotation of said crank imparts a peculiar oscillating movement to the hoe blade which closely approaches the movements of an efficiently operated hand hoe. At the same time most of the physical labor incident to such hand operation is eliminated and the operator has little to do but support and guide the handle.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a sectional elevation of my improved hoe structure.

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

Fig. 3 is a similar view substantially on the line 3—3 of Fig. 1, but showing the crank in its topmost position.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes a rigid handle bar of suitable length secured to and depending from the sides of which at its lower end are rigid plates 2. These plates serve as bearings and supporting means for a crankshaft 3 disposed near the lower end of the same. One end of the crank shaft is connected, on the outside of the corresponding plate, with a drive structure which includes a flexible shaft 4 enclosed in a suitable flexible housing 4*a* as usual in drives of this character. This shaft is adapted to extend to an operating mechanism mounted on a cultivator or similar machine as shown in said patent, and which it is consequently not necessary to illustrate or describe here. The crank 3*a* of the crankshaft has journaled connection with a member 5 mounted on the shank 6 which is disposed under the handle in spaced but vertical alinement therewith. This shank projects some distance beyond the lower end of the handle and the side plates and has a hoe blade 7 of suitable shape secured to its lower end.

Toward the upper ends of the plates a pin in the form of a bolt 8 extends therebetween, said bolt having a spacer 9 about the same and extending between the inner faces of the plates so as to prevent the latter being pinched together when the bolt is clamped in place. The spacer projects through a block 10 slidable in a guide member 11 mounted on the shank; the length of the guide being not less than the full length of the stroke of the crank 3*a*. Additional spacers 12 are disposed about the spacer 9 to the sides of the block so as to prevent lateral displacement of the latter.

As a result of the use of the separated crank and slide supports for the shank, it will be seen that with the rotation of the crank the shank is moved both lengthwise and vertically, while toward its rear end it is held at a substantially fixed distance from the handle. The blade will therefore have a longitudinal movement accompanied by an up and down angular movement. The drive mechanism is of course turned in such a direction that the downward movement of the blade will take place at the same time as its forward movement occurs. This peculiar movement gives a very efficient hoeing operation, simulating to a close degree an efficient hand action.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. In a hand power operated hoe having handle-supported bearing plates, a hoe-shank projecting between the plates, and means for reciprocating the shank including a crankshaft journaled at its ends in the plates and having its crank engaging the shank; a bevel gear fixed on one end of the crankshaft outwardly of the adjacent plate, another bevel gear engaging said first gear and disposed with its axis projecting upwardly therefrom, and a flexible driving shaft connected to and projecting upwardly from the last named gear.

2. A structure as in claim 1, with a housing in which both gears are enclosed and forming a bearing for the upper gear, said housing being secured to the adjacent bearing plate.

In testimony whereof I affix my signature.

JENS CARL DITLEVSEN.